

# MANUFACTURING EXTENSION PARTNERSHIP

## Success Stories from the Field

### Ceradyne Inc

#### California Manufacturing Technology Consulting

#### Ceradyne, Inc., Increases Sales And Productivity

##### Client Profile:

Ceradyne, Inc., formed in 1967, develops, manufactures, and markets advanced technical ceramics for defense, industrial, automotive/diesel, and commercial applications, including ceramic armor for military personnel and vehicles. In recent months, Ceradyne's body armor products have been widely publicized for saving many military personnel lives. Customers include the U.S. Department of Defense, Lockheed Martin Missiles and Ford Motor Company. Ceradyne employs more than 400 personnel at two Irvine, California, locations and employs 175 people at their Costa Mesa facility.

##### Situation:

In 2003, as the conflict in Iraq continued to escalate, demand for Ceradyne products increased dramatically. This rapid growth began to stress the capacity of the manufacturing areas, particularly in the critical hot press department where ceramic components for military armor were produced. In order to meet the high volume of demand, Ceradyne needed to rapidly identify ways to increase production and address the capacity issues. Addressing these issues would allow Ceradyne to increase revenue and meet the demands of their customers. The company contacted California Manufacturing Technology Consulting (CMTC), a NIST MEP network affiliate, for assistance.

##### Solution:

CMTC's team of consultants recommended starting the hands-on implementation of Lean Manufacturing with a core Lean program called 5S. The goal of the 5S approach is to establish an effective workplace with well-organized and standardized work procedures. These processes are designed to improve efficiency, work organization, quality, safety, and housekeeping by using the 5 methods of Sort, Set in Order, Shine, Standardize, Sustain, and a new addition by Ceradyne, Safety. Phase 1 of the program started in the Hot Press area in June 2003 and was completed in December 2003 with great success. Based on the positive results of Phase 1, the program was extended to June of 2004 in order to convert other production areas. With the collaboration of Ceradyne personnel, CMTC designed and facilitated a program that included a combination of classroom training and hands-on implementation in the production areas. Tasks included Sort to eliminate unnecessary items from the workplace; Set in Order to focus on efficient and effective storage of tools and materials; Shine to thoroughly clean the work area; Standardize to implement best practices in the work area; and Sustain, a critical part of the program that deals with maintaining the improvements. At Ceradyne's request, a special emphasis on Safety was added, thus making the program '5S+Safety.' A major success of the program was that Ceradyne formed teams in the production areas that took ownership of the processes. These teams were comprised of all levels of production, including supervisors, operators, maintenance, and safety personnel. In a joint effort with Ceradyne personnel, CMTC's 5S approach rectified areas of manufacturing that were costly to its production line in dollars and effectiveness. The 5S implementation proved successful and created a new line of production procedures that reaped benefits with an increase in productivity, along with better operations and

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working environment. By increasing the production levels and maximizing the capacity, Ceradyne was able to meet the increased demand and deliver its products on time and on budget. Subsequently, the 5S approach improved job efficiency while defining a new set of health standards and better work environment.

### **Results:**

- \* Increased productivity by 25 percent within the first 3 months of implementation.
- \* Increased sales by 66 percent.
- \* Increased employment by 14 percent.
- \* Projected increase in over-all productivity by 10 to 15 percent.
- \* Projected annual cost savings to exceed \$900,000.
- \* Improved job efficiency.
- \* Defined new set of health standards.
- \* Improved work environment.

### **Testimonial:**

"CMTC's hands-on expertise and deep commitment to our success made a real contribution to significant increases in sales and productivity immediately following their support."

Al Gerk, Director of Operations